DR. COURSARIS: With that, I'd like to move right along to our next and final speaker. He comes to us from a very productive unit, from the Department of Writing, Rhetoric, and American Culture. John, if you want to come in the meantime as I introduce you, to be all wired. We have very similar interests in cultural studies and new media and interaction design. Recently, he's received a top accolade by our peers by being spotlighted by exceptional researcher by the Association of Internet Researchers. So it is with great pleasure I introduce John Monberg here with us to speak on the RFID technology or RFID-related usability issues, and the topic of today's presentation is containing RFID, expanding usability. He will speak on a framework that typically and unfortunately doesn't make sense in most cases, as issues become invisible, but drawing up on society's experience with containerization, John re-crafts usability to better grapple with the issues surrounding RFID technologies. With that, I'd like to welcome John here today.

(Applause)

DR. MONBERG: Is the microphone working? Yeah, okay. Thanks for giving me the opportunity to speak with you today. I'm especially interested in emerging corporate practices because I train students and I help them to develop the skills they'll need to be successful in their careers doing iteration

design, and probably many of you have interests in hiring students who have those particular kinds of skills. So, if you have any insights, I just found out that MSU has updated their email limit up to a gigabyte. So even if you take the time to write me an extremely long email about advice, I'll be able to read it in my inbox. My email is available from my homepage here. My name is unusual enough if you did a Google search on John Monberg you could find my email address.

Since I'm presenting last today I've decided to take a really broad perspective on usability and interaction design, and I also decided to remove all of the bullet points from my presentation. I've done this because I want to take you on a journey to different places and I want you to be able to look at the qualities of those places. So instead of using bullet points, I've put in lots of images.

I'm going to begin today with a couple of people that have inspired my thinking about usability interaction design and user experience. I'll use their perspective to think about two examples from transportation infrastructures that have really reshaped our world, RFID and containerization. Then I'll conclude by talking about a course I'm developing right now called Ethnography and Interaction Design which will focus on building a collaborative Web site to support community decision-making in the Michigan Avenue Corridor. And the Michigan Avenue

Corridor is just down the street a little bit, and it both physically and symbolically connects MSU and the University community here with the downtown community in Lansing.

When I was a computer programmer or systems analyst at a major bank in Chicago 20 years ago, there was a giant gulf between the computer work that I did and the time on the side I spent reading about sociology and anthropology. The gulf was so wide that it was impossible at that time for me to combine both of those things. In a mainframe computing environment, you could successfully design software with the assumption that individuals in strongly defined roles were seeking to accomplish very specific tasks. Today in a world of iPhones, texting, Google Maps, the use context is much more complex and it's especially true as transportation infrastructures and urban spaces become more tightly interwoven with interfaces and information flows. The CATA example is a good example and we could imagine the use of Twitter and Facebook additionally in the future. Instead of people thinking that the virtual world would replace the physical world as early Internet people thought, instead the physical world has become much more rich and much more complex. So the theme I'll be developing this afternoon is that usability and interaction design techniques need to adapt to this new world. Unless we move away from the framework of individuals and specific tasks and move to a

framework sensitive to the ways that social worlds are supported and transformed by information, the systems we design will fail.

Now, our economy has been undergoing a gigantic transformation from an industrial economy to an information or experience economy. This is a transformation we're well aware of in Michigan as the daily newspaper and kind of real time constant updates in the stock market underline in painful and unmistakable terms. It is clear the change is taking place and it is clear that industrial management processes can't create the products and services that will succeed today. But what kind of management processes will succeed?

I attended a talk by Allen Cooper at the Savannah College of Art and Design, which itself is a wonderful example of the energy that can happen when the connections are made between an educational institution in a vibrant urban form. Allen Cooper argues that software development needs a design engineering phase. Before lots of resources are thrown at a software project, organizations need to take the time to do user research and interaction planning before coding happens. He says that traditional command and control industrial management approaches that skip this step in the desire to kind of rush things and be first to market, end up with what he refers to as the Stay Puft Marshmallow Man of software development. Without doing the right kind of user research and the right kind of

planning, it is impossible to deliver systems on time, on budget, that fulfill user needs.

Microsoft Vista is a wonderful example of a project that was extremely late, far over budget, and failed to meet user needs so dramatically that Microsoft itself aired commercials trying to disguise or pretend to its user base that it wasn't really Vista they were looking at. So Microsoft hired experienced Google Bill Buxton, and that's a photo of him. Buxton recognizes that designing for experience comes with a whole new level of complexity. This is especially true in this emerging world of informational appliances, reactive environments, and ubiquitous computing, where, along with most of their users, we have to factor in the convoluted behaviors of the products themselves. Doing this effectively requires both a different mindset as well as different techniques. Buxton recognizes the importance of an interdisciplinary design approach that melds together both technical skills and humanistic skills. Without this kind of design thinking, as he refers to it, systems fail. So, what does usability failure look like in the context of transportation? Profound social, political, and cultural consequences of technologies are invisible without a larger framework, and when consequences are invisible, we're not aware of them, we can't debate about them, we can't deliberate them, we can't reshape them through public

discussion and debate. So I'm going to focus now on Radio Frequency Identification, RFID technologies. And because we are currently using a framework that assumes that individual, independent individuals, are trying to accomplish discreet tasks, we are missing the most important consequences of these technologies, and we risk failure, a failure to design systems that work, and a failure to build the kind of worlds that we want to live in. My analysis of RFID technology will be clarified by examining the impact of an earlier technical innovation, that of containerization.

Container shipping is a simple innovation that transformed cities and regions more quickly and more profoundly than any decision-makers involved in this process could ever have dreamed of. RFID technology will be adopted on a scale that dwarfs containerization. Many more objects will be tagged. There will be many more points of intervention; many more kinds of applications will be created. RFID technologies are a replacement for Universal Product Codes, which are small, printed barcode labels that appears on billions of consumer products and distribution pallets, and all of you are well aware of what a UPC code looks like. This is an RFID tag. The standardized UPC also holds only a limited amount of data, and to read these you actually have to run a scanner over them. In these busy days we're all annoyed when the supermarket scanner

takes an extra 30 seconds to get us through the line. If RFID tags were on every item, you could instantly run the whole cart through. You don't have to have the optic scanner run over every object, and you can read everything at once. The UPC tag holds 12 digits of data. RFID tags can hold much, much more data. So this tag is an enabling element of a system that also includes scanners, and connected to databases, connected to information systems across a corporate government institutional, global marketplace. About 1.3 billion tags were distributed in 2006. By 2010, 33 billion of these RFID tags will kind of float around the planet. Unfortunately, when thinking about RFID technology, when it receives any public scrutiny at all, we again focus on specific individuals and specific tasks, which especially focus on privacy concerns. I could point to any number of examples taken from the media where the kind of privacy aspects are hyped. Some of these are serious, like the draft report on the Department of Homeland Security Emerging Applications and Technology Subcommittee. Other examples are more trivial in terms of the number of people that are involved. About 30 people have actually had RFID tags that are about the size of a grain of rice implanted under the skin. So, like in the Style Section of the New York Times you've got reports about some of these 30 individuals. There's also a tendency to use an apocalyptic frames to think about RFID technology, right? We

should be worried about – you know, the name of this book alone I thought was intriguing: The Spy Chip Threat, Why Christians should resist RFID and Electronic Surveillance. So we're really focusing on privacy issues. This Big Brother focus on aspects of RFID privacy is certainly important, especially when we think about coded passports, which will be RFID capable, but the bigger picture is missed, and the more substantial transformation in the world we miss is kind of invisible with this frame. So, to help think about the big picture I want to talk about the impact of containerization.

In 1956, 58 aluminum boxes traveled between Newark, New Jersey and Houston, Texas, and these boxes were loaded once and then they were able to be moved by rail, ship, truck. Because of the savings in labor and time, the cost of shipping soon dropped from $5.83 per ton to ship to less than $ .l6 per ton. So it's like a 40-fold reduction in the cost of moving goods across the planet. So this technology continues to transform the transportation of goods and also transform global patterns of trade and the urban hubs that structure the production, transportation, distribution, and consumption of these goods that are moved across the globe. In 2006, 15 million containers sailed on 3,500 cargo ships, and global shipping is projected to expand from 100 million container miles in 1990 to 500 million this year. Now, few things can be more

trivial in terms of the technical advancement than a container, which is literally a box, a box of standard dimensions, and a box that has standard couplings which you can kind of see on the bottom. But this simple standardization allowed for a global infrastructure to be created that literally spans the globe. We've got docks, rail yards, advanced shipping cranes. We even have manmade islands, as in the case of Vancouver. So you can think of the container functioning sort of as an invading species that rearranges an entire ecosystem of relationships. From New Jersey, to Arkansas, to Beijing, container shipping has revolutionized networks of transportation, production, and consumption. Container shipping has unquestionably altered cities. The docks and the community of dock workers who lived in neighborhoods nearest seaports, in cities like New York, San Francisco, and Los Angeles, had very different qualities, qualities determined by the scale and rhythm associated with loading and unloading ocean-going ships. There's a whole way of life, the Archie Bunker world that exists. The world of Archie Bunker and other workers like him have disappeared with containerization. This world was replaced by a society where new jobs and new kinds of subbers were created, where, far from the coasts, you know, up to thousands of miles from the coasts, warehouses were created because unloading and loading could take place in facilities like this, super-scaled warehouses, perhaps

a thousand miles from the water's edge. And it's not just warehouses that were changed. Retail districts for many kinds of goods have also been removed from the crowded urban stores and urban central districts to exurban in superstores. Only a company the size of Walmart has the scale to take advantage of the lower wages, cheaper labor costs, and weaker regulatory climate of undeveloped areas outside cities. Walmart has grown to such an extent that the retail space of Walmart is now bigger than the physical size of the island of Manhattan. Containerization effectively moves the working class out of unionized urban cities, like Lansing, to cities in China, where the state can much more effectively mobilize state power to discipline workers in roles like this. So, with containerization it's not the privacy issues, but reshaping of the worlds that we live in in really profound ways. We've only begun to see the transformation of our landscape into the fantastical. And I think the most striking example of this is Dubai, which is a formerly almost uninhabited strip of sand, and it's no longer the cultural container that it once was. Its geographic, political, economic, and social position has been utterly transformed by containerization. The Dubai Port Authority is constructed in extensive infrastructure with world-class facilities to support containerization, including more than 100 shipping berths and five super-post Panamax cranes.

You can see an image of the cranes in the foreground, kind of highlighting the significance of the cranes that support the kind of development you see in the background. I'll talk a little bit more about that development. This infrastructure is a pre-condition for what has been called a glittering capitalist fantasyland. So, here's another view of Dubai. An early audacity, first-built islands for Dubai extending into the Gulf that were modeled after a palm tree, and the audacity has grown a little bit more. Now, they use the globe as the model that they're reenacting. Formerly, barren sands now hold every form of superlative development beyond even the most fervent imaginings of Donald Trump. Luxury hotels beyond categorization, endless upscale real estate developments, office towers, shopping malls, and indoor ski jump facilities. So all of the top architects are designing new forms of building in Dubai. On perhaps a cosmic level of hubris, patterns of development today in Dubai take the pattern of the Star Wars death star, and that's a Rem Koolhaas design. I should mention that this semester MSU's Dubai campus opened and began instructing its first class of students, and the department I'm in looks forward to building its global program of interaction design with courses offered in Dubai.

So today, containers are piled by their thousands and mute stacks. They move slowly across the Pacific or rapidly across

the highways of the endless prairie mid-continent. The containers don't speak to us, and we do not think of them in terms of communication. RFID does communicate. These markers coordinate input from innumerable sensors with computer databases. RFID technology allows location awareness and with it comes the ability to coordinate action from a centralized location across a much wider space, as at un-yet unimaginable levels of detail. The integration of the physical and the virtual is developing at a rapid pace. Carefully coordinated supply chains move physical objects from factories in China to a shipping port in Los Angeles, to distribution centers in Topeka, to a specific shelf of a retail outlet. Walmart RFID-enabled pallets are already common and soon RFID tags will proliferate into the many billions. It is a certainty that the surrounding costs of collecting, storing, analyzing deployed data will drop. Network computing then dissolves into the fabric of the things around us. The integration of RFID technology, supply chain management, and communication networks is leading to what an international telecommunications union report issued in 2005 projects as the Internet of things.

Now perhaps the thing that most completely bridges the realm of the material and the metaphorical in constituting an Internet of things is Sun Computers recently announced Project Black Box, which is a data center in a shipping container. This

data center consists of hundreds of computers, terabytes of memory storage. It's designed to be shippable. It's efficient. It uses less space, uses 20 percent less energy. Most importantly, though, it can be constructed much more rapidly than a bricks and mortar data center. Since we live in a Web 2.0 world where people can take an idea, turn it into a business plan, and then to code and then create a user base of millions of individuals extremely rapidly, we'll be able to see many more of these black boxes existing as RFID technology is deployed. And we'll need especially large numbers of these black boxes because RFID tags are also shrinking, to the point where Hitachi talks about something called Smart Dust, where you could bounce radio waves off these sensors and have the information flooded back. That would allow data to be deployed almost endlessly. So, we come full circle. RFID tags do more than threaten the privacy of individuals, shipping containers and RFID tags form networks that transform the social practices that order space, time, community, identity, and if we're going to make good decisions about this, we need to be more aware of their consequences. Science and technologies has thought a lot about how society can grapple with these technological issues, and Bruno Latour and Peter Weible have brought together a lot of these forums in a book called Making Things Public, Atmospheres of Democracy, and that subtitle strikes me as especially

relevant to kind of managing a world of Smart Dust in a more democratic approach.

I'd like to move from the big picture now to talk about a project I'm currently developing, and that's going to be used to support deliberation about urban forum economic development and transportation locally in the Michigan Avenue Corridor: The Ethnography and Interaction Design course that finally brings together the software skills and the sociology and anthropological investigations of culture that I first tried to merge 20 years ago. We're finally at the moment where if we're going to create new things, we have to do more than just interview people about what they like now and understand the social worlds that they live in. So, I want to draw on some of the best practices in industry from my course, and I've borrowed some slide PowerPoints for this presentation. The first is by Clement Mok, who is the chief creative officer at Sapient, which is a global design firm that employs 4,000 consultants in cities from Boston to Bangalore, and when he thinks about the social life that we live in, he creates an image that looks like this. So a dense, urban city where people haven't gone into a basement to use Facebook, they're out on the street with Twitter and iPhones and other kinds of devices…I relate to this brand, don't tie me down, I do my own research. Again, though, I see this emphasis on individual choice. We see the words "I" and "me"

far too often and Mok misses the kinds of public zoning, investment decisions, infrastructure and economic aspects that are needed to create places that would draw crowds to places like this in the first place. He underlines the importance of the role played by new Web 2.0 in creating a world like this, through this example: Podcasts, blogs, Google, Yahoo, microsites, eBay, cell phones. All of these allow individuals to create their own content in great numbers that then create emergent masses of data that allow new ways of things to be organized and made sense of. To design a system effectively in this urban context, we need to move away from a focus on discreet individuals and tasks, and use sophisticated approaches to gather information about the social world people inhabit, and integrate that into the design process. The field has made great strides in articulating this process. This slide is by Richard Fulcher, Bryce Glass, Matt Leacock, who are interaction designers and information architects at AOL, and instead of kind of having your eyes completely glaze over by going into all 17 or so of these bubbles, I'm going to stick to the one at the upper right-hand corner where they talk about personas and understanding kind of quintessential users of systems, and look at that in a little bit more detail.

This is a slide by Steve Mulder, who is director of emerging interactions at Molecular, and author of The User is

Always Right, a Practical Guide to Creating and Using Personas for the Web, and he shows the rich set of techniques we can use to go out into the world and understand, not individuals pursuing tasks, but the social world that they live in. Interviews and usability testing are a part of that, also field studies, thinking about goals and attitudes, and behaviors. And to further complicate this, we can think of a rich set of research tools, probes, Participatory Design, User-Centered Design. Both of those have long academic histories. Participatory Design, of course, has a Scandinavian tradition. Sometimes they're in conflict and sometimes they work. Sometimes when you're actually just trying to build a Web site, you can kind of water down and ignore that background. But important details sometimes can make a difference. So here, we get to blend and balance research versus design, and understanding the expert mindset versus participatory mindset. As we move to the Web 2.0 world, we'll probably move much more to the second dimension.

My students and I will conduct research in the community across a wide range of stakeholders; small business owners, major employers, government planners and officials, leaders of community organizations, and residents. And there have already been three community vision meetings that have identified more than 60 specific design changes that could

affect the Michigan Avenue Corridor. Improvements in streetscape, transportation infrastructure, quality of life, zoning, signage, public art, public investments, and lots of other features that can affect kind of a new urbanism, creative city feel for a Lansing/East Lansing community that sort of desperately needs this to be successful at a global level. That data, some of which experts have deep understanding of, other things focused on specific points, and so we want to build a Web site that lets a community participate and make sense of all of this information more easily. We want to use agile programming techniques including rapid prototyping. We plan on using rubion rails to build a Web site that will allow a community to have a more detailed understanding of their possible design options for the Corridor. There are lots of generic Web functions that have been developed; Google mapping that allows particular points to be identified, blogging, tagging, uploading photographs. So we've got lots of generic functions that could be tailored with this real rich set of data that will allow people who live along the Corridor to see how their world could be improved. So with a system, you start with a blank slate, and you end up with a real rich set of relationships, and one of the things that I'm interested in, and I understand there's a tension and I want to explore that a little bit more, is that people like Allen Cooper say you really need to do thorough user research and really

create an architecture for design, not at an aesthetic level, but a real functional level, before you start coding, but the rubion rails community advocates jumping in right away and doing prototyping. I want to kind of play with that tension. So if any of you have advice for managing software design projects and balancing the need to getting the system right versus the need to getting real rapid feedback from users, I'd love to hear specific techniques that you use.

I'm really excited about this project, partly because projects like this help us get a setting that's much more rich, much more complex, so instead of understanding individual users pursuing pre-defined tasks, even a fairly simple photograph like this of an urban context would give us lots of ways of thinking about how information and the transportation infrastructure could redesign to make things the quality of life improved. I'm also excited about this project because the Michigan Avenue Corridor already has lots of spaces that support the kind of diverse, mixed use, sustainable activities that enhance the quality of life in a city, and support the kind of informal communication that's so important to generate innovation and creative cities today. Finally, I'm excited about this project because the Michigan Avenue Corridor project is a model for the kind of partnerships that are required to move academic research created from the traditional land grant mission of an

institution like Michigan State University into the kind of world grant vision for the University of generating academic knowledge that helps local communities compete at a more global level.

I hope I've been able to give you an enlarged sense of the possibilities for usability, and I'd like to open the conversation now to any questions, criticism, feedback, comments, advice, that you'd like to share with people now.

QUESTION FROM AUDIENCE: Not audible.

DR. MONBERG: You can look at each particular object as an idea. So, like a Coca Cola can could have an expiration date that you wouldn't have to turn the bottom of. You could run a scanner down the aisles and instantly identify which particular object was old or new. There must be – if I was a supply chain manager I'm sure I could think of thousands of specific decisions that I would want to know like that that would either allow my brand experience to be fresher or save costs, reduce labor costs, respond to changes more rapidly, move distribution centers to the right place. When we live in a world of Hitachi Dust, the ability to track objects all over the place and make better decisions about those objects, I can't think about that, even off the top of my head, but when we have containerization, we move from a world of Queens, New York and Archie Bunker, to a world of Dubai skyscrapers. I can't imagine

the kind of social world that we'll inhabit with the Magic Dust from Hitachi.

MEMBER FROM AUDIENCE: On your Michigan Corridor project, if that's what you want to call it, what is your approach to getting people to get engaged out of the community? How are you actually going to get them to participate?

DR. MONBERG: People look forward to participating if they understand – there have already been three community vision meetings, and there are about 40 people involved in each of those meetings. I've already identified a lot of the stakeholders. Part of the project, Prima Civitas, the Allen Neighborhood Center, MSU has a Community of Economic Development Outreach Center. So there are a lot of existing organizations. The neat thing is that it's far enough from MSU that sort of a lot of students' mental landscape is kind of pushed outside, but it's easy, especially using CATA, we can take the Number One bus and be there in 15 minutes. Going to particular places, like Gone Wired, or the Allen Neighborhood Center, or the new Community and Economic Development offices. So plenty of people want to be involved. Maybe the thing that I'm most concerned about is that existing stakeholders already are used to having their voices heard, and we get those voices. I've been part of a lot of Lansing transformation meetings, like the Oakland Saginaw Corridor Project, and maybe the people whose lives have

been impacted the most harshly over the last few decades are the very people whose voices aren't usually part of the process. So I'd like to think more about how to make the dialogue more inclusive.

QUESTION FROM AUDIENCE: Not audible.

DR. MONBERG: As the hedge funds have noticed with the sub-prime calculations.

QUESTION FROM AUDIENCE: Not audible.

DR. MONBERG: There are a couple of things that I think about. One is the gulf between a humanistic understanding and the kind of algorithmic technical understanding. Things like Web 3.0 and semantic understanding, I think those are inherently limited and held hostage to this kind of individual mindset that assumes you can understand semantic words and that its limited and every word has an atomistic value that makes sense, and if there was a way of incorporating a more humanistic way of identifying particular context and how to move from context to context and how things shift, that might be an approach where some innovative thinking would take place. I think of Google, the ability to write count links from one page to another, and then look at the importance of a particular page and then look at literally hundreds of millions of bits of information in a constant evolution of their algorithm to understand the page rank algorithm. So I'm sure they have

incredibly smart people with gigantic amounts of real world data, and huge profit incentives to do a better job of making sense of these things. People at the WIDE Center, Jeff Grabill and Bill Hart Davidson are actually doing really interesting work parsing like email messages to think about things like credibility and ethos and the rhetorical effectiveness of communication. So you might talk with them and they might be able to point you in some useful direction.

DR. COURSARIS: If I could hold off on John's reply. Sometimes we tend to not ask the right questions, out of convenience or constraints of our environments, our jobs, or circumstances imposed on us, so that's why we're still faced with that tremendous gap, whereas if you're seeing some more innovation-focused environment societies – I do quite a bit of work in Japan, for example, and RFID leverage tremendously in industry between the mobile carriers and the retailers, the brick and mortar operations coexisting. We haven't seen that yet but they are asking the right questions; how can we work together for a bigger pie, and they're supporting making the right investments to enable to putting in place the right infrastructure.

John, thank you again for a very helpful presentation. It is very appropriate that you have had those images and the talk on Dubai because it helps me to make transition to the last portion, which is the announcement of the award recipients for

the posters for the research in progress that most of you saw during the break. And with that, I'd like to point out why we're having this poster session, and it is really to balance what is currently happening in industry today or government and industry, as a result of research. And we're celebrating research. And we celebrate on both the exploratory level, the early phases, all the way through some of the projects that are presented here today that have carried through and we see the tangible, real world implications.

With that, I would like to call the three recipients of this year's People's Choice Awards. As you hear your name, please come up to receive your award and to have your photograph taken and then we'll also ask you to go at the rear of the room and have your picture taken again with your posters.

I'll start with Nicole Lysack. Please come up. Nicole's work looked at comparing the usability of digital versus analog speedometers. The next poster is titled, "A System for the Rapid Identification of Toxic Chemicals in HAZMAT Response Vehicles", by Suresh Bhavnani, Arun Ganesan, Chris Weber, Steven Banas, and Paul Saxman. Chris Weber, Steven Banas, and Paul Seitzman. Chris Weber is here to receive the award. And our third award winner this afternoon, Bethany Davis, for her work on text and image effects on Web site usability. Congratulations, Bethany.

And with that I'd like to pass it on to Sarah for closing remarks.

DR. SWIERENGA: I'll be very brief. Thank you so much for sticking with us until the end of the day. It's been a fantastic day. I hope you've learned as much as I have. Fantastic speaker line-up. I want to thank all of our speakers again for taking the time out of their busy schedule to be here today. They did this as a labor of love and I think we should recognize that. Our colleagues are willing to come and teach the rest of us what they have learned along the way. So speakers, take another round of applause here.

(Applause)

DR. SWIERENGA: I also want to make sure to thank TechSmith and the MSU Libraries, Computing and Technology Organization for being our platinum sponsors. TechSmith, as you've experienced today, is very active working on our behalf in the field of usability and on campus here David Gift and his office have been tremendously supportive and strong advocates of usability and accessibility throughout all of MSU and at MSU Dubai, across the world. So they've really done a lot for usability and accessibility. We need to acknowledge that.

(Applause)

DR. SWIERENGA: And finally, I'd like to make sure to recognize CATA, and you've now heard from Chris as well, to hear

some of the exciting things that they've done. Dean Transportation and Dean Trailways. Website Optimization, Andy King was here most of the day for us. University Outreach and Engagement, our home, has been a very big underwriter of this event and we always appreciate that in the event team, most of whom are standing in the doorway saying, get done so we can go upstairs, and also the College of Communication Arts and Science where Constantinos is posted, and I'm a research adjunct there, particularly in the Department of Telecommunications, Information Studies, and Media. Matrix, the Center for Humane Arts, Letters, and Social Sciences Online, the Resource Center For Persons With Disabilities, who provided our – and we should give a round of applause to the interpreters.

(Applause)

DR. SWIERENGA: You can imagine how exhausting it is to be signing for a solid afternoon. So thank you very much for doing that and being here today. And finally, the Writing and Digital Environment Research Center, John's home turf over there in Writing, Rhetoric & American Culture.

So, thank you very much and at this point let's go to the reception, which I understand is right upstairs from us in the Lake Superior Room. So let's go and enjoy some refreshments and have an opportunity to chat a little longer. Thank you again. Thank you for coming.